DOCUMENT RESUME

ED 072 338 AC 014 179

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TITLE	Estimation of Recreation Development Potentials through Scaling Attitudes of Non-Corporate Timberland Owners in East Texas.
PUB DATE	Aug 72
NOTE	23p.; Paper presented at the Rural Sociological Society Meeting, Baton Rouge, Louisiana, August 25-27, 1972
EDRS PRICE	MF-$0.65 HC-$3.29
DESCRIPTORS	*Attitude Tests; *Land Use; Parks; Questionnaires; *Recreation; Recreational Facilities; *Surveys; Tables (Data); Technical Reports
IDENTIFIERS	*Texas

ABSTRACT

A study was conducted to determine the propensity of non-corporate owners of large forest tracts in East Texas to offer their lands to the general public for recreation. The overall objective was to determine if an attitude scale could be used to differentiate between non-corporate timberland owners with definite plans for recreational development and those without such plans. An attitude scale was constructed from a collection of statements sorted by 50 judges along a six-point positive-negative continuum. Data were collected in interviews with 100 landowners. Results showed that: (1) owners had favorable attitudes toward recreation, but the recreation plans of approximately 1/5 of them involved vacation home subdivisions rather than recreation opportunities for the general public; (2) about half had no plans for development of recreation opportunities; (3) 2/3 of the remaining 30 percent appeared to be willing to consider development of income-producing recreation facilities; (4) knowledge of the concept of multiple use was not related to plans for recreational development; (5) current policies of allowing visitors were not related to recreation plans; and (6) landowners with plans for recreational development were statistically more frequent foreign travelers than landowners with no such plans. A list of references is provided. (KM)

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ED 072338

ESTIMATION OF RECREATION DEVELOPMENT POTENTIALS THROUGH SCALING ATTITUDES OF NON-CORPORATE TIMBERLAND OWNERS IN EAST TEXAS

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Rural Sociological Society Meeting
August 25 - 27, 1972
Baton Rouge, Louisiana

AC014179

ESTIMATION OF RECREATION DEVELOPMENT POTENTIALS THROUGH SCALING ATTITUDES OF NON-CORPORATE TIMBERLAND OWNERS IN EAST TEXAS

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Overcrowding of public recreational areas in the United States has prompted comments from recreational professionals and laymen at all levels--national, regional, and local (Reed and Reid, 1969; Bury, 1968; BOR, 1967; Clawson, 1959). In local areas, one alternative to lessen recreational pressures on public lands rests with the private sector which is frequently divided into corporate and non-corporate ownerships. Reports have appeared concerning both types of providers of recreational opportunities (Prestridge, 1968; Whittaker, 1968; McCurdy, 1964; Owens, 1964; Moody, 1962; Albert, 1960).

With one exception, each of the above conditions are found in the East Texas Pineywoods. Public recreational areas are overcrowded (Gosdin, 1970; Olson, 1970), non-corporate landowners possess most of the forest acreage in the area (Sternitzke, 1967), and Reed and Reid (1969), and Bury (1968) have stressed the importance of the private sector to offer recreational opportunities in Texas. Corporate landowners in East Texas have been studied in previous research (Prestridge, 1968), but no intensive efforts have focused on the non-corporate sector.

Thus, a recent research effort was undertaken to determine the propensity of non-corporate owners of large forest tracts in East Texas to offer their lands to the general public for recreational opportunities. Minimum forested ownerships considered were 1000 acres, and a master list compiled from

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county tax rolls, and Texas Forest Service files showed that 172 such ownerships existed in East Texas; data were obtained from 100 of these via personal interview. Examination of general information gleaned about the two non-respondents showed that little or no differences existed between the respondents and non-respondents.

LITERATURE

The use of social science techniques in natural resource management was traced to 1895 when Ashe (1895) used a mailed questionnaire to study forest users. Within a decade of the 1920 impetus in attitudinal studies in the United States (Thurstone and Chave, 1929), similar techniques were employed in forestry (Shea, et al. 1939); subsequent research in forestry has utilized the attitudinal approach. Intensive investigations, well represented by the work of Hendee, et al. (1968), and Burdge, Sitterly, and So (1962), have utilized the attitudinal approach in recreation research.

Attitude has been variously defined as evidenced by reviews and individual attempts to explain the concept (Allport, 1935). Realizing that man must repeatedly cope with the same or similar objects, and that these objects repeatedly evoke the same or similar cognitions, feelings, and response dispositions (Krech, Crutchfield, and Ballachey, 1962), the concept of attitude for this study was operationalized as the propensity to think, feel, and act in similar ways in similar situations.

OBJECTIVES AND METHODOLOGY

The overall objective of this research was to determine if an attitude scale could be used to differentiate between those non-corporate timberland owners who had definite plans for recreational development and those who had

no plans for such development. A successful result would permit the estimation of recreation opportunity potentials on non-corporate timberlands under future owners as well as under current owners. Specific objectives included: (1) development of a scale to measure landowner attitudes toward outdoor recreation, and (2) specification of potential relationships between landowner groups as typified by responses to variables such as recreational development plans, a concept of land management, policies for recreational use of forest resources, and personal travel patterns.

The Equal Appearing Intervals technique developed by Thurstone and Chave (1929) was used as follows to construct the attitude scale utilized in this research. The method involved collection of 164 statements from students and professionals in recreation and parks, and from literature in the field. Each statement was edited to eliminate multiple ideas, avoid ambiguity, and ensure brevity. The statements were reproduced and single copies of each statement placed in envelopes to form packets. The packets were submitted to 50 judges who sorted the statements into six piles along a positive-negative continuum. The judges were composed of senior undergraduate and graduate students, and professionals in the field of recreation and parks.

After the judging procedure was completed, accumulative frequencies were determined and plotted for each statement (Figure 1). The median position of each statement was the scale-value, and the ambiguity (Q-value) of each statement was computed as the difference between the scale values of each statement at the .25 and .75 quartiles. The smaller the Q-value the less ambiguous the statement.

Validity of the scale was basically predicated on the large number of persons contributing statements and the large group of judges who sorted the statements. Reliability was determined by submitting parallel forms of the

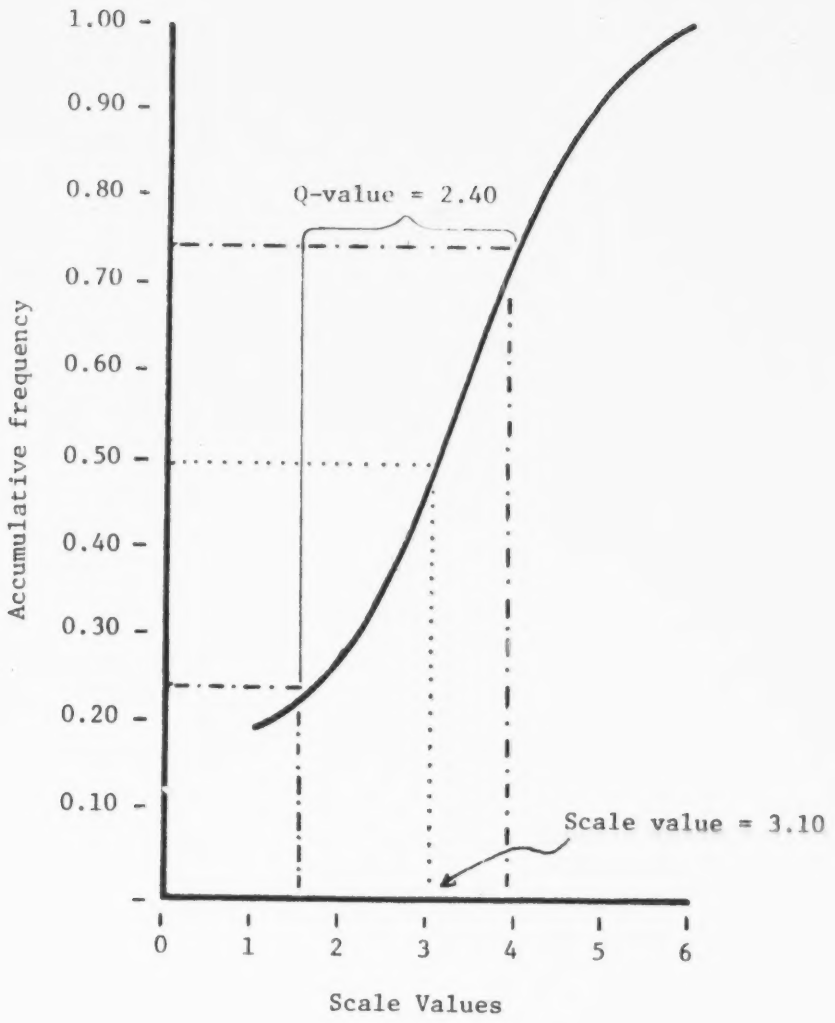

Fig. 1.--A hypothetical ogive as constructed for each statement, and based on accumulative frequencies of the judging procedure.

scale to a large group of subjects and correlating the results. Individual attitude scores were computed as the mean scale value of the statements with which the subject agreed; the lower the scaled score, the more positive the attitude.

The use of 50 judges and the six-point continuum in construction of the recreation scale constituted two changes from the original method of scale construction. Thurstone and Chave (1929) used 300 judges and an 11 point continuum, but several authors have reported successful use of fewer judges, and one reference concerning "neutral" statements in a scale (Edwards, 1946) was instrumental in the elimination of the odd-number of points along the continuum. Validity of the judging was checked by placing duplicate statements in the packets; those statements were almost identically scaled by the judges.

Forty of the original 164 statements were selected for reliability tests. Criteria for selection of each statement were low Q-values and equal distribution along the continuum. Parallel forms of the scale, each containing 20 statements, were prepared and administered to 87 subjects. The estimated reliability as approximated by the Spearman-Brown formula was .69. Results of Ferguson's (1939) investigation of scale reliability showed that various authors had obtained reliabilities ranging from 0.30 to 0.91. Other authors (Seashore and Herner, 1933) have reported results obtained from scales which had reliabilities ranging from 0.61 to 0.77. Based on these and similar results, the reliability of the recreation scale was deemed acceptable for field use.

Twenty of the 40 statements were chosen to form the final scale (Figure 2), and the scale was incorporated in an interview schedule which was pretested in the field and subsequently modified for interviews of sampled owners. The range in scale values was 0.80 to 5.55; the mean value of the scale was 3.27.

Fig. 2.--Scale and Q-values of statements used to measure attitudes of large forest landowners toward recreation.

	Scale Value	Q Value	Statement
1.	0.80	1.40	Recreational opportunities should be available to all people regardless of race, creed, or social status.
2.	1.05	1.10	As leisure time increases, more recreational facilities will be needed.
3.	1.10	1.70	Recreation is an important ingredient in a full life.
4.	1.80	1.50	Recreation is compatible with the primary objectives of good forest management.
5.	2.20	2.70	Recreation for one individual may be rebellion to another.
6.	2.30	1.70	Recreation should be provided by governmental agencies who can justify the taking or use of land for recreational purposes.
7.	2.55	2.00	Recreation might be another way to earn a little added income.
8.	2.60	1.45	There should be a small fee for public recreational areas.
9.	2.80	1.60	Hunters and fishermen use East Texas recreational areas more than any other group, or type of visitor.
10.	3.25	0.95	As far as a landowner allowing recreation on his land goes, it strengthens his sphere of influence in his social situation.
11.	3.50	1.50	Visitors from distant locations probably have no trouble in locating present recreational facilities in East Texas.
12.	3.60	2.30	What some people need is to work more and play less.

Fig.2 (continued)

	Scale Value	Q Value	Statement
13.	3.80	1.75	Most Houston, Dallas and Fort Worth residents are aware of the recreational opportunities on East Texas forest lands.
14.	4.10	1.80	They're damming up too many creeks and rivers in East Texas.
15.	4.40	2.20	There are presently enough developed recreational areas in East Texas.
16.	4.65	1.50	Quality recreation should be restricted to those who can pay.
17.	4.90	1.20	Recreation in East Texas should be restricted to publicly owned lands.
18.	5.10	2.00	All privately-owned forested land in East Texas should be accessible to the general public for all forms of outdoor recreation without any restrictions.
19.	5.40	0.70	Recreation and urban areas are completely incompatible and should not, for any reason, be located near each other.
20.	5.55	0.40	All publicly owned recreational areas in East Texas should be abolished and the land put up for sale.

Data were collected from 100 persons, and represented a 58 percent systematic sample of owners of large non-corporate tracts of forest land in East Texas.

Landowner responses were dichotomized in the form "development plans versus non-development plans," mean attitudinal scores for each group were calculated, and differences between means were statistically tested by analysis of variance. Chi-square analyses were used to determine relationships between six other variables within the plan-no plan dichotomy.

RESULTS AND DISCUSSION

Approximately 75 percent of the 100 respondents were over 50 years of age, self-employed, worked more than 40 hours per week, and had no children living at home. About one-half of the respondents had completed high school and some college work. Also, about one-half of the respondents earned in excess of $20,000 annually after taxes.

Those interviewed owned a total of 771,683 acres of land in East Texas. Individual ownerships ranged in size from 1,000 acres, all forested, to 262,000 acres with 32,315 acres in forest. Fifty-six percent of the holdings were between 1,000 and 2,999 acres in size. Approximately 83 percent of all land owned by the interviewees was forested.

Recreation Attitude Scale Responses

The range of scaled scores was 2.01 to 3.51, with a mean score of 2.56 for the 100 respondents. The distribution of scores appears in Table 1. No individual scored the mean of 2.56; however, four individuals scored 2.50, and four scored 2.54, which resulted in those scores being most frequently represented. The median score was 2.54.

Qualitative results based upon responses and comments stimulated by use of

Table 1.--Distribution of attitude scores toward recreation as obtained from 100 non-corporate forest landowners in East Texas

Attitude Score	Frequency
2.00 or less	0
2.01-2.25	18
2.26-2.50	28
2.51-2.75	33
2.76-3.00	14
3.01-3.25	5
3.26-3.50	1
3.51 or more	1
Total	100

the recreation scale (Table 2) provided pertinent information about issues relevant to provision of recreational opportunities on non-corporate forests.

The landowners appeared aware of the demand for recreational opportunities and believed that a supply deficit existed. Specifically, most owners (64%) felt that the urbanized populations within 100 miles of the East Texas Pineywoods area were aware of the recreational opportunities in that forested region. Also, 51 percent of the interviewees believed that visitors from distant locations had little trouble in locating East Texas recreational areas. Ninety-one percent of the respondents believed the major recreational activities of East Texas visitors were hunting and fishing, and, philosophically, 96 percent of the interviewees said that recreation was an important ingredient in a full life. In accordance with the recognition of demand, 98 percent of landowners endorsed the idea that more recreational facilities would be needed in the future, and only 20 percent of those interviewed felt that enough developed recreational areas presently existed.

Responses relevant to the relationships of private versus public ownership, and fee versus free access, appeared to be interrelated. Sixty-three percent of the landowners were opposed to governmental agencies justifiably taking or using land for recreational purposes, 22 percent of the respondents were in favor of restricting recreation to public areas, but no one was in favor of abolishing public recreational areas.

Most respondents (86%) endorsed the concept of fees on public areas; also, most (85%) believed private recreational development to be income-producing, and almost one-half (49%) endorsed the concept of restricting "quality recreation" to those who could pay. Only four percent of the landowners agreed with the idea of opening all private lands to the general public for recreational opportunities, but 43 percent of the landowners believed that

Table 2 --Distribution of agreements/disagreements, and comments for scaled items used to measure the attitudes of 100 large forest landowners in East Texas toward recreation

Attitude Statements	AGREEMENT Number Agreeing	Comments Number	Generalizations	DISAGREEMENT Number Disagreeing	Comments Number	Generalizations
1. Most Houston, Dallas and Fort Worth residents are aware of the recreational opportunities on East Texas forest lands.	64	10	Especially hunters in recent years.	36	6	Doubts that most do.
2. Quality recreation should be restricted to those who can pay.	49	9	Quality as matter of economics. Users must pay. Free enterprise is best.	51	6	Not on public property.
3. All privately-owned forested land in East Texas should be accessible to the general public for all forms of outdoor recreation without any restrictions.	4	2	With some restrictions.	96	10	Fire danger, destruction of property.
4. Recreational opportunities should be available to all people regardless of race, creed, or social status.	81	10	Agree but qualified: too some extent, to some members of all races, but Negros only race mentioned.	19	2	With reservation.

Table 2. (continued)

Attitude Statements	AGREEMENT Number Agreeing	Comments Number	Generalizations	DISAGREEMENT Number Disagreeing	Comments Number	Generalizations
5. There should be a small fee for public recreational areas.	86	16	Maintenance and improvement; encourage respect for property.	14	2	Not if public funds available.
6. As leisure time increases, more recreational facilities will be needed.	98	1	Don't see how leisure time can increase more.	2	0	
7. Recreation is an important ingredient in a full life.	96	3	Mental health, family cohesion.	4	3	If not taken to extreme.
8. They're damming up too many creeks and rivers in East Texas.	26	6	Too much land off tax rolls.	74	16	Need all the water we can get.
9. Recreation in East Texas should be restricted to publicly owned lands.	22	4	Not to exclude leasing of private property.	78	8	Believes in free enterprise.
10. There are presently enough developed recreational areas in East Texas.	20	6	For the present time.	80	11	Not at peak periods; too few private developments.

Table 2. (continued)

Attitude Statements	AGREEMENT Number Agreeing	Comments Number	Generalizations	DISAGREEMENT Number Disagreeing	Comments Number	Generalizations
11. Hunters and fishermen use East Texas recreational areas more than any other group, or type of visitor.	91	4	Yes, but picnicking and camping gaining.	9	2	Picnickers and campers.
12. Recreation might be another way to earn a little added income.	85	3	To offset taxes.	15	3	Would definitely cost money.
13. What some people need is to work more and play less.	88	19	Need balance--some people work too much.	12	6	Individual must decide.
14. As far as a landowner allowing recreation on his land goes, it strengthens his sphere of influence in his social situation.	43	5	Has for individual and companies.	57	6	Has not for individual or companies.
15. Recreation is compatible with the primary objectives of good forest management.	66	17	If fire controlled; if people controlled.	34	6	Forest fire danger.

Table 2. (continued)

Attitude Statement	AGREEMENT Number Agreeing	Comments Number	Generalizations	DISAGREEMENT Number Disagreeing	Comments Number	Generalizations
16. Recreation and urban areas are completely incompatible and should not, for any reason, be located near each other.	17	2	Litter in city.	83	6	Cities need more than rural.
17. Recreation for one individual may be rebellion to another.	89	4	Recreation means different things to different people.	11	2	Can't feature.
18. Recreation should be provided by governmental agencies who can justify the taking or use of land for recreational purposes.	37	13	Need government participation, but justify and pay fair price.	63	21	Taking!
19. All publicly owned recreational areas in East Texas should be abolished and the land put up for sale.	0	0		100	3	That would be catastrophe.
20. Visitors from distant locations probably have no trouble in locating present recreational facilities in East Texas.	51	3	Well marked on map.	49	8	East Texas not too well advertised.

they could gain social influence by opening their lands for general use by the public. A majority of the forest landowners (66%) believed recreation was compatible with the objectives of forest management.

Recreational Development Plans

Nineteen percent of the landowners interviewed had plans for some form of recreational development, 57 percent had no plans for recreational development and 23 percent were involved in developments for themselves and their families only. One respondent owned an income-producing recreational area, but it was not located within the study area.

An analysis of variance showed that a statistically significant difference existed between the mean recreation attitude scores of owners with plans for development and owners with no plans for development ($F = 2.8799$, $P \leq .10$). The mean recreation attitude score of landowners with plans was more positive (2.48) than those who had no plans (2.61).

The most definite plans for recreational development involved vacation- or second-home developments on man-made lakes in East Texas. Only a few owners specifically mentioned development of areas which would be open to the general public on a fee or free basis; these involved the creation of game management areas where day or season hunting leases would be economically feasible for the landowners. "Economically feasible" as used by the landowners meant a return of capital expenditures and other costs, plus profits equivalent to taxes on their forested property.

The most frequent and involved reason for no plans for recreational development was disenchantment with previous consulting services. It appeared from marginal comments recorded during the interviews that a serious communication gap existed between consultant and client. Apparently, consultants

simply promised the owners more than they could produce.

Management Concepts

Table 3 shows a summary of the Chi-square comparison of landowners with and without plans for recreational development and the frequency of responses to the concept of multiple use, current recreational policies, and travel patterns.

An earlier study showed that only 18 percent of the American public knew the meaning of the term multiple use of forest land (American Forest Products Industries, Inc., 1963). Comparatively, the East Texas landowners were quite knowledgable of the concept. Of all landowners interviewed, 55 percent knew three of the five multiple uses, 15 percent gave two of the five uses, and 30 percent did not know any of the multiple uses of forest land. The five multiple uses accepted were forage (grazing), recreation, water, wildlife, and wood.

The frequency of owners who did and did not know any of the multiple uses of the forest was determined for individuals with and without plans for recreational development (Table 3). Results were tested by Chi-square analysis and the resulting value (1.76) had a probability of occurrence $P < .25$. Thus little relationship existed between plans for development and knowledge of the multiple use concept. Two aspects were obvious concerning the non-corporate landowner and his connotation of multiple use. First, multiple use generally connotes optimization rather than maximization of production from the resources. The non-corporate landowner frequently is not in agreement with this concept of multiple use. Often his acreage may not be single blocks large enough for several uses, and in cases where acreages are large enough, his personal land management policies may prohibit one of the multiple uses for which the area may

Table 3. -- Relation between non-corporate forest landowners with and without plans for recreational development, and frequency of endorsement of other variables.

	Plans (N = 19)		No Plans (N = 57)			
Variable	Yes	No	Yes	No	χc^2	P (1df)
Multiple use	13	6	27	30	1.76	.25
Public, no fee	6	13	15	42	.02	.90
Invitation, no fee	18	1	47	10	.89	.50
One-day travel	15	4	39	18	.33	.75
Interstate travel	17	2	42	15	1.29	.50
Foreign travel	18	1	39	18	3.95	.05

be suited. For example, his land may be closed to the general public for recreation because of vandalism, forest fires, or other reasons. Secondly, some non-corporate ownerships are purely financial investments from the owner's point of view, and optimization of various products from the resources may not maximize dollar return.

Current Recreational Policies

Two broad recreational land-use policies were investigated. The first postulated admitting the general public onto non-corporate lands at any time, but at no fee. Twenty-seven percent of the interviewees subscribed to that policy. The most frequent reason given for adopting this policy was that vast acreages prohibit policing, and as a result the "allow general public, no fee" policy was a reality. Other landowners believed that they gained public good-will (social influence) by opening or not prohibiting general use of their lands. An increase in forest fire risk was the most frequent reason given by owners who did not allow the general public onto their lands. The Chi-square analysis (Table 3) shows virtually no relation between owners with and without plans for development in terms of that general public admittance policy.

The second recreational policy postulated public participation by invitation, but without fees. Eighty-eight percent of the landowners subscribed to that policy for several reasons. Entertaining guests was a frequently mentioned recreational activity of many owners. Also, some landowners used their lands to entertain business or potential business associates; hunting and fishing trips ranked high on the list of activities in which guests participated. Although guests were invited, it was common for no facilities to be furnished on site; guests were housed with the host. The overriding reason for this condition was to prohibit unauthorized use of facilities in the owner's absence.

As above, the "invitation, no fee" policy revealed no significant differences between owners with plans for recreational development and owners without development plans (Table 3).

Travel Patterns

The last three variables concerned landowner travel patterns in terms of one-day travel, interstate travel, and foreign travel. Approximately three-fourths of all landowners did participate in some form of travel. Chi-square analyses of the frequency of participation in the three levels of travel shows that as "distance" of travel -- local, interstate, foreign -- increased, the greater the proportionate share of owners with plans for recreational development participated (Table 3). The frequency of foreign travel by landowners with plans for development was significantly greater at the .05 level than landowners with no plans for development but who travelled in foreign countries.

SUMMARY AND CONCLUSIONS

Although owners of large non-corporate forest tracts in East Texas possessed favorable attitudes toward recreation, recreational developments as planned by approximately one-fifth of the respondents involved vacation home subdivisions which would not provide outdoor recreation opportunities for the general public. About half of the respondents had no plans for development of recreation opportunities. Of the remaining 30 percent, two-thirds appeared to have the propensity to consider development of income-producing recreation facilities. This propensity was supported by three factors revealed by the research: (1) landowners were aware of the demand for recreation opportunities; (2) landowners perceived a current supply deficit; and (3) landowners generally believed that offering outdoor recreational opportunities on private forest land was compatible with good forest management.

Attainment of this potential for recreational development requires consideration of several other factors. First, landowners wish sufficient fee income for recovery of costs associated with the provision of recreation opportunities; this would require that fees be raised on public lands that provide alternative but similar recreational opportunities. Secondly, research should investigate the true level of fire risk, vandalism, and littering attendant upon opening of these private timberlands to recreational use; owners will be much more likely to open lands and to develop recreational facilities if fire risks and other abuses of forest properties are shown to be low. Thirdly, a change in many ownerships may be expected in the not too distant future as evidenced by the advanced age of many current owners. Attitudes of heirs or new owners may vary from present owners; trends in value systems should be explored by those wishing to estimate the future contribution of these lands to the total supply pattern of outdoor recreation opportunities.

Landowners' knowledge of the concept of multiple use was not related to their plans for recreational development. Likewise, current policies of allowing visitors onto non-corporate forest land were not related to plans for development. Finally, the frequency of participants in one-day and interstate travel was not related to plans for recreational development. However, landowners with plans for recreational development were statistically more frequent foreign travellers than landowners with no plans for development. The overall travel trend showed that as the frequency of travel progressed from local to interstate to foreign, the probability of plans for recreational development increased.

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